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(71) Applicant *(for all designated States except US)*: **SHIMADZU RESEARCH LABORATORY (EUROPE) LIMITED** [GB/GB]; Wharfside, Trafford Wharf Road, Manchester, Lancashire M17 1GP (GB).

(72) Inventor; and
(75) Inventor/Applicant *(for US only)*: **BRANCIA, Francesco, Lorenzo** [IT/GB]; 27 Sibson Road, Chorlton cum Hardy, Manchester, Lancashire M21 9RH (GB).

(74) Agents: **MCCALLUM, Graeme, David** et al.; Lloyd Wise, McNeight & Lawrence, Highbank House, Exchange Street, Stockport, Cheshire SK3 OET (GB).

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— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

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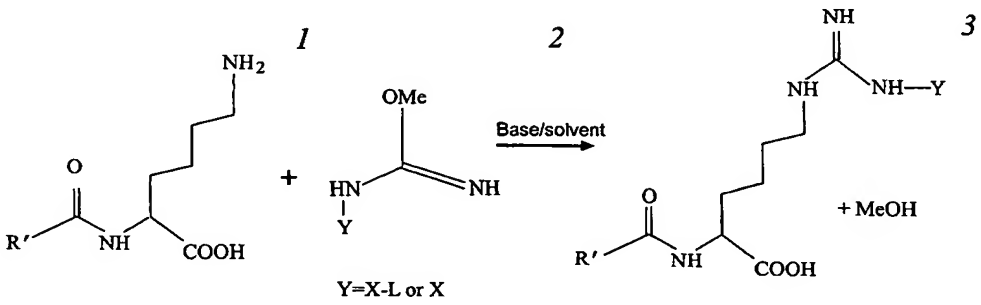
For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: SELECTIVE BINDING AND ANALYSIS OF MACROMOLECULES: QUANTITATIVE ANALYSIS OF PROTEINS IN COMPLEX MIXTURES



(57) Abstract: There is disclosed a method for selectively binding micromolecules having a lysine functionality comprising the steps of: providing a sample containing one or more species of macromolecules, each having a lysine functionality; providing a binding reagent having the formula X-NH-C(=NH)-OR or X-L-NH-C(=NH)-OR where X is an affinity label that selectively binds to a capture reagent, R is a residue group, and L is a linker moiety; introducing the binding reagent to the sample so as to effect a guanidination reaction between the binding reagent and said one or more species of macromolecules, thereby producing one or more affinity label containing homoarginine derivatives; optionally modifying the affinity label containing homoarginine derivatives to produce further affinity label containing homoarginine derivatives; and capturing affinity label containing homoarginine derivatives using the capture reagent that selectively binds X.

WO 2003/102592 A3

INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB 03/02420

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 G01N33/68 G01N33/53 C07C275/70

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 G01N C07C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CAGNEY GERARD ET AL: "De novo peptide sequencing and quantitative profiling of complex protein mixtures using mass-coded abundance tagging" NATURE BIOTECHNOLOGY, vol. 20, no. 2, February 2002 (2002-02), pages 163-170, XP001155365 ISSN: 1087-0156 Abstract; Fig. 1. --- -/--	1-27

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
16 October 2003	18. 11. 2004

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	L pez Garcia, F

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB 03/02420

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	BRANCIA F L ET AL: "A combination of chemical derivatisation and improved bioinformatic tools optimises protein identification for proteomics." ELECTROPHORESIS. GERMANY FEB 2001, vol. 22, no. 3, February 2001 (2001-02), pages 552-559, XP002257401 ISSN: 0173-0835 Abstract; p. 553, col. 1, paragraph 2. ---	1-27
X	DATABASE CROSSFIRE BEILSTEIN 'Online! BEILSTEIN INSTITUT ZUR FOERDERUNG DER WISSENSCHAFTEN, FRANKFURT AM MAIN, DE Database accession no. 1753773 XP002257403 the whole document -& BRUCE: "ON THE OXYGEN EHTERS OF UREA. II CONDENSATIONS OF THE ISOUREAS" JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, vol. 26, 1904, pages 449-464, XP009019049 the whole document ---	22,24-27
X	DATABASE CROSSFIRE BEILSTEIN 'Online! INSTITUT ZUR FOERDERUNG DER WISSENCHAFTEN, FRANKFURT AM MAIN, DE Database accession no. 2096913 XP002257821 the whole document & BRUCE: "ON TH EOXYGEN ETHERS OF UREA.II CONDENSATONS OF THE ISOUREAS" JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, vol. 26, 1904, pages 449-464, XP009019049 the whole document ---	22,24-27
X	DATABASE CROSSFIRE BEISLTEIN 'Online! INSTITUT ZUR FOERDERUNG DER WISSENCHAFTEN, FRANKFURT AM MAIN, DE Database accession no. 3337097 XP002258054 the whole document & BRUCE: "ON THE OXYGEN ETHERS OF UREA.II CONDENSATIONS OF THE ISOUREAS" JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, vol. 26, 1904, pages 449-464, XP009019049 the whole document --- -/--	22,24-27

INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB 03/02420

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DATABASE CROSSFIRE BEILSTEIN 'Online! INSTITUT ZUR FOERDERUNG DER WISSENCHAFTEN, FRANKFURT AM MAIN, DE Database accession no. 1489771 XP002258055 the whole document -& NOWAK & KRUG: ROCZ. CHEM., vol. 42, no. 2, 1968, pages 263-268, XP009019219 the whole document	22,24-27
A	WO 00 11208 A (UNIV WASHINGTON) 2 March 2000 (2000-03-02) cited in the application the whole document	1-27
A	GYGI S P ET AL: "QUANTITATIVE ANALYSIS OF COMPLEX PROTEIN MIXTURES USING ISOTOPE-CODED AFFINITY TAGS" NATURE BIOTECHNOLOGY, NATURE PUBLISHING, US, vol. 17, no. 10, October 1999 (1999-10), pages 994-999, XP001010578 ISSN: 1087-0156 cited in the application the whole document	1-27

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB 03/02420

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-27 (all partialliy)

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-27 (all partially)

   The reagent "target A" and its use in quantification of proteins in complex mixtures.

2. Claims: 1-22, 24-27 (all partially)

   The reagent "target B" and its use in the quantification of of proteins in complex mixtures.

3. Claims: 1-22, 24-27 (all partially)

   The reagent "target C" and its use in the quantification of proteins in complex mixtures.

4. Claims: 1-22, 24-27 (all partially)

   The reagent "target D" and its use in the quantification of proteins in complex proteins.

5. Claims: 1-22, 24-27 (all partially)

   The reagent "target E" and its use in the quantification of proteins in complex mixtures.

INTERNATIONAL SEARCH REPORT

Information on patent family members

In[illegible]el Application No
PCT/GB 03/02420

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 0011208 A	02-03-2000	AT 253126 T	15-11-2003
		AU 755334 B	12-12-2002
		AU 5691399 A	14-03-2000
		DE 69912444 D	04-12-2003
		EP 1329513 A	23-07-2003
		EP 1105517 A	13-06-2001
		JP 3345401 B	18-11-2002
		JP 2002523058 T	30-07-2002
		JP 2003107066 A	09-04-2003
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